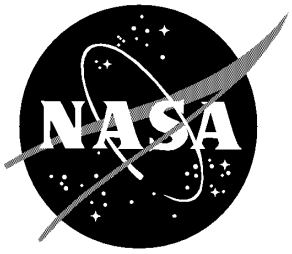

National Aeronautics
and Space Administration

MAY 24, 1999
AO 99-0SS-02

ANNOUNCEMENT of

OPPORTUNITY

MARS SURVEYOR '98 MISSION
PARTICIPATING SCIENTIST PROGRAM

Notice of Intent Due: JULY 26, 1999
Proposals Due: AUGUST 24, 1999

OMB Approval No. 2700-0085

Mars Surveyor '98 Mission
Participating Scientist Program

Announcement of Opportunity
Soliciting Proposals for
Basic Research in Space Science

AO 99-OSS-02
Issued: May 24, 1999
Notice of Intent to Propose Due: July 26, 1999
Proposals Due: August 24, 1999

Office of Space Science
National Aeronautics and Space Administration
Washington, DC 20546-0001

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1. DESCRIPTION OF THE OPPORTUNITY

1.1 Introduction

This National Aeronautics and Space Administration (NASA) Announcement of Opportunity (AO) solicits proposals for Participating Scientist (PS) investigations on the Mars Surveyor (MS) '98 Mission. The scientific objectives of Mars Surveyor '98 are to advance our understanding of the Mars climate history. The important role of volatiles, especially water, and the strong evidence for both long-term and episodic climate change are some of the most compelling reasons for exploration of Mars. This theme is addressed by the science investigations selected for Mars Surveyor '98 mission. Principal Investigators (PI's) of selected proposals for this opportunity will become PS's and join the appropriate Mars Climate Orbiter (MCO) or Mars Polar Lander (MPL) Science Investigation depending on the nature of their proposals. PS investigations are being sought for participation on the science teams of the Mars Color Imager (MARCI) on MCO and for the Mars Volatiles and Climate Surveyor (MVACS), the Mars Descent Imager (MARDI), and the Light Distance and Ranging (LIDAR) instrument on MPL. PS's were selected by a previous AO for the Pulse Modulator Infrared Radiometer (PMIRR).

Participating Scientist proposals include investigations that are instrument specific or interdisciplinary in nature and must include both science analysis and an operational component in order to be considered. It is anticipated that about 7-10 investigations will be selected. It is also anticipated that investigations will be limited to about $35-45K per year and start in mid CY 1999 and continue through CY 2000 for MPL and through CY 2001 for MCO. Investigations are being sought, but are by no means limited to, those that investigate soil mechanical properties as determined from the mechanical arm and other sources, atmospheric structure measured during entry and while aerobraking, and radio science.

The selected PS's will coordinate their activities and analysis with the present PI's and Co-Investigators (Co-I) on Mars Surveyor '98. PS's selected under this AO will have full rights of access to mission data and be expected to participate in data analysis, archiving, and publication as do Co-I's on the particular investigation to which the PS's are attached. The selected PS's will coordinate their activities and analysis with the present mission PI's and Co-I's on Mars Surveyor '98.

1.2 Responsibilities of Participating Scientist

Each selected PS will participate in mission operations. There is no distinction between PS's that propose to use the data from one instrument compared with those that propose to use data from a variety of instruments. However, each PS will be assigned to an instrument investigation. Section 2 lists the MS '98 instruments and PI's.

The role of the PS is to:

- Provide science input for mission planning and instrument operations and calibrations;
- Reduce and validate scientific data;
- Analyze, interpret, and publish results and findings in peer reviewed literature;
- Prepare raw and reduced data for archiving for future use by the scientific community; and
- Support education and public outreach efforts of the Mars Surveyor '98 Mission.

These activities are to be undertaken in a manner consistent with the Mars Surveyor Data Policy (see Section 1.4).

1.3 Scope and Limitations of Proposals

Participation is open to all categories of organizations, both domestic and foreign, including educational institutions, profit and nonprofit organizations, NASA centers, and other Government agencies.

In accordance with NASA policy, all investigations by non-U.S. participants will be conducted on the basis of no exchange of funds.

Only the PI from each investigation selected through this AO will be designated as a PS on the Mars Surveyor '98 mission. PS PI's may identify and may request support for specific individuals or support staff considered essential to the conduct of their investigation, but none of these individuals will be eligible to be a PS unless they submit an independent proposal.

Proposed investigations must be of primary relevance to a least one of the investigations listed in Section 2.

1.4 Mars Surveyor Data Policy

The following general rules apply to data rights, use, and publication of MS '98 data (see Mars Surveyor Program Data Management Plan, Arvidson et al., 1999):

There is no proprietary period for any data collected by the spacecraft or instruments. However, science instrument data may require a validation period of up to six months from the time of receipt of data. After validation, the relevant achive volumes will be transferred to the Planetary Data System (PDS) which will make them available to the general scientific community.

Data deposited in the PDS will contain the appropriate calibration information and ancillary data. Later versions of archive data may be delivered to PDS as algorithums and ancillary information are updated.

During the generation/validation period, use, analysis or release of raw and derived products should be done only with the agreement of the relevant PI or Team Leader. It is expected that all investigations will publish their results in a timely manner in the open scientific literature.

Significant subsets of data will be released earlier as a form of public outreach and education; such data release may be available as postings on the Internet (e.g., World Wide Web) and will conform to the Public Release Policy.

1.5 Education/Public Outreach Requirement

OSS has developed a comprehensive approach for making education at all levels (with a particular emphasis on precollege education) and the enhancement of public understanding of space science integral parts of all of its missions and research programs. The two key documents that establish the basic policies and guide all OSS Education and Outreach activities are a strategic plan entitled *Partners in Education: A Strategy for Integrating Education and Public Outreach Into NASA's Space Science Programs* (March 1995) and an accompanying implementation plan entitled *Implementing the Office of Space Science (OSS) Education/Public Outreach Strategy* (1996). Both can be accessed by selecting "Education and Outreach" from the menu on the OSS homepage at URL http://www.hq.nasa.gov/office/oss, or from Dr. Jeffrey Rosendhal, Office of Space Science, Code S, NASA Headquarters, Washington, DC 20546-0001, USA.

In accord with these established OSS policies, up to 2% of the NASA budget for Mars '98 mission will be allocated to education and public outreach. Because of the limited scope of this program, NASA does not expect a stand-alone Education/Public Outreach proposal component to be submitted with each research proposal. NASA does, however, expect that investigators selected through this AO will become involved in and support a common Mars Surveyor Education/Public Outreach program to be defined and implemented in conjunction with the Mars Surveyor Program Office at Jet Propulsion Laboratory (JPL). Therefore, selected investigators should be prepared to spend up to 5% of their time supporting such activities, which may include, but not be limited to, developing ideas for creative and worthwhile educational materials; preparing written background information suitable for primary and secondary school educational resources; and preparing portions of the Mars Surveyor data for use in educational and public outreach materials.

2. BACKGROUND: THE MARS SURVEYOR '98 MISSION

The scientific objectives of the Mars Surveyor '98 mission are to:

- Observe the seasonal cycle of dust, water and carbon dioxide to better understand processes of climate and to locate surface and subsurface reservoirs of ice and dust;
- Characterize global atmospheric structure and circulation to better understand transport of dust and water, including processes associated with regional and global dust storms;
- Characterize surface structure and compositional units and their changes with time.
- Land and explore a site having physical evidence of ancient climates and more recent, possibly periodic, climate change.

Mars Surveyor '98 is composed of two main elements: Mars Climate Orbiter (MCO) and Mars Polar Lander (MPL). More information about the Mars Surveyor '98 mission can be found on the World Wide Web at URL HYPERLINK http://mars.jpl.nasa.gov/msp98.

2.1 Mars Climate Orbiter and Science Investigations

The following scientific objectives are emphasized as part of the Mars Climate Orbiter mission:

- Determine variations in atmospheric dust water (including clouds) over a Martian year;
- Identify surface reservoirs of volatiles (carbon dioxide and water) and dust, and characterize their changes with time (e.g., season);
- Investigate processes that control regional and global dust storms, as well as processes that transport water and dust.
- Characterize surface morphology and compositional units.

2.1.1 Mars Climate Orbiter Mission

Mars Climate Orbiter (MCO) will be injected into an elliptical orbit around Mars on September 23, 1999. It will use aerobraking to achieve a 1.9 hour, nearly circular orbit (421 kilometer altitude) by about mid-November 1999. The final science or mapping orbit will be a "late afternoon" orbit that takes the spacecraft over the Martian equator at approximately 4:30 p.m. mean solar local time on the day side of the planet, and 4:30 a.m. on the night side of the planet. The orbiter will then carry out its primary mission making systematic observations of the atmosphere and surface of Mars using its two science instruments, the Pressure Modulator Infrared Radiometer and the Mars Color Imager. The length of the science mission was chosen to span one Martian year, 687 Earth days, so that scientists can observe seasonal variations in the Martian weather. During the three months after insertion into mapping orbit, but prior to the start of the mapping mission, MCO will also act as a radio relay for the Mars Polar Lander, transmitting commands to the lander and returning data from it during daily 10-hour communication sessions. Therefore, the Orbiter may collect only a limited amount of orbiter instrument science data during this Lander support mission phase.

2.1.2 Scientific Instruments

Mars Climate Orbiter carries two scientific instruments [these are described in greater detail in the Proposal Information Package (PIP) at URL http://mars.jpl.nasa.gov/msp98].

Mars Color Imager (MARCI) (PI: Dr. Michael Malin, Malin Space Science Systems, Incorporated): A combination of wide and medium angle cameras view atmospheric phenomena such as clouds, dusthazes and ozone and surface features using a spectral range from ultraviolet to near-infrared wavelengths and low-to-medium (> 40 m at nadir) spatial resolution.

Pulse Modulator Infrared Radiometer (PMIRR) (PI: Dr. Daniel McCleese, Jet Propulsion Laboratory, and Co-PI, Vassili Moroz, Space Research Institute, Russian Academy of Sciences): A nine-channel infrared sounder scans the Martian atmosphere to measure temperature, dust, water vapor and condensate clouds and also measures key components of the radiative balance which controls the seasonal variations on the polar caps. The PMIRR is a duplicate of the Mars Observer PMIRR. Three Participating Scientists were previously selected.

2.2 Mars Polar Lander and Scientific Investigations

The following scientific objectives are emphasized as part of the Mars Polar Lander mission:

- Characterize the layered terrain in the vicinity of the lander via descent imaging and multispectral stereo landed imaging;
- Characterize the surface and subsurface mechanical and thermal properties, textures, and mineralogical makeup of the layered terrain;
- Quantify the concentration of volatiles (i.e., water and carbon dioxide) in the atmosphere and in surface and subsurface materials;
- Investigate the meteorological behavior and structure of the high-latitude atmosphere during late spring and summer;

2.2.1 Mars Polar Lander Mission

Mars Polar Lander will land on Mars in a target sector ranging from about 73-78 south latitude, 170 to 239 west longitude on December 3, 1999. The Lander will enter the Martian atmosphere and initially be slowed by atmospheric drag acting on its aeroshield. About 2 minutes before landing, a parachute will be deployed, the aeroshield will be jettisoned, and the descent imager powered on. About 1.5 kilometers above the surface, the Lander will be released from the parachute and it will soft land using descent rocket engines. The exact landing site will be chosen by September 1999 using previous spacecraft data augmented by new data provided by Mars Global Surveyor.

The Lander will operate through its primary mission of 60-90 Martian days, during which time it will collect science data on the atmospheric conditions and weather patterns, observe changes in the landscape, and search for evidence of subsurface or surface water. During operations, the Lander will take weather measurements, Lidar measurements, and, using the robotic arm, dig shallow trenches to provide samples to the thermal evolved gas analyzer for analysis. Images of the surface will also be taken during the entire mission.

The Mars Polar Surveyor carries two single instruments and one integrated payload instrument (these are described in more detail in the PIP at URL http://mars.jpl.nasa.gov/msp98).

2.2.2 Scientific Instruments

The Mars Polar Surveyor carries two single instruments and one integrated payload instrument package (these are described in more detail in the PIP).

Mars Volatiles and Climate Surveyor (MVACS) (PI: Dr. David Paige, University of California, Los Angeles): An integrated instrument package designed to carry out studies of the surface environment, weather, and geology of the south polar region using:

- Surface stereo imager: an imager (identical to the Mars Pathfinder Imager) mounted on top of a 1.5-meter mast that captures panoramas of the Mars landing site and provides imaging support for other payload elements.

- Robotic Arm: a 2-meter arm attached to the lander's deck that has an articulated member on its end with digging scoop, camera, and surface temperature probe.

- Meteorology Package: the lander's weather station includes a 1.2-meter mast with a wind speed and direction sensor, temperature sensor and tunable diode laser that detects water and isotopes of water and carbon dioxide. In addition, MET includes a 3-foot (0.9-meter) submast with wind speed sensor and two temperature sensors pointed downward from the lander's deck is also included.

- Thermal and Evolved Gas Analyzer: an instrument that heats soil samples and analyzes them to determine concentrations of volatiles such as water or carbon dioxide, whether present as ice or in volatile bearing minerals.

Mars Descent Imager (MARDI) (PI: Dr. Michael Malin, Malin Space Science System, Incorporated): An imager takes 10-15 pictures as the lander descends toward Mars' surface beginning just before heat-shield ejection at an altitude of about 5 kilometers and continuing until landing. These are stored onboard the Lander and transmitted back to Earth over the few days of the lander mission.

Light Detection and Ranging (LIDAR) Experiment (PI: Dr. V. S. Linkin, Space Research Institute, Russian Academy of Sciences): An instrument that emits pulses of light from a laser and then detects their echo as they bounce off materials in the atmosphere.

3. POINT OF CONTACT FOR ADDITIONAL INFORMATION

Mr. Joseph M. Boyce
Mars Program Scientist
Research Program Management Division
Code SR
Office of Space Science
NASA Headquarters
Washington, DC 20546

Phone: (202) 358-0302
FAX: (202) 358-3097
E-mail: jboyce@hq.nasa.gov

4. PROPOSAL SUBMISSION INFORMATION AND SCHEDULE

4.1 Notice of Intent to Propose

Proposers are strongly encouraged to submit a Notice of Intent (NOI) by July 26, 1999. The Notice of Intent should be submitted electronically using the form found at URL<http://props.oss.hq.nasa.gov>. Anyone experiencing difficulty with this process should E-mail Ms. Debra Tripp for assistance at dtripp@hq.nasa.gov).

To the extent that the proposer knows the following information by the due date, the Notice of Intent should include:

- Name, institution address, telephone number, E-mail address, and fax number of the Principal Investigator; and
- Title of the proposed investigation, a brief statement of the scientific objectives, and the Mars Surveyor '98 instrument relevant to the investigation.

4.2 Format and Contents of Proposals

Appendix A contains general NASA policies for proposals, which is considered binding unless specifically amended in this AO. In order to facilitate evaluation, NASA also requires a uniform proposal format, described in Appendix B, for all proposals submitted in response to this AO. Failure to follow this outline may result in reduced rating during the evaluation process or, in extreme cases, could lead to rejection of the proposal without review.

4.3 Certification

An official of the PI's institution who is authorized to certify institutional support and sponsorship of the investigation, as well as the management and financial parts of the proposal, must sign the proposal.

4.4 Quantity

Proposers must provide 20 copies of their proposal, plus the original signed proposal.

4.5 Proposal Submission Deadline

The proposal deadline is 4:30 p.m. EST, August 24 , 1999.

4.6 Submittal Address

Mars Surveyor '98 Participating Scientist Opportunity
Jorge Scientific Corporation
400 Virginia Avenue., SW, Suite 700
Washington, DC 20024
Phone: (202) 554-2775

4.7 Notification of Receipt

NASA will notify proposers in writing that their proposals have been received. Proposers not receiving this confirmation within two weeks after submittal of their proposals should contact the address given in Section 4.6

4.8 Non-U.S. Proposals

The following guidelines are established for non-U.S. responses to this NASA AO.

(i) All non-U.S. proposals must be offered on a no-exchange-of-funds basis in which each side covers their respective costs.

(ii) All non-U.S. proposals will be submitted in accordance with all provisions with the exception of a cost plan. Proposals must be typewritten and written in English.

(iii) A non-U.S. proposal must arrange with their appropriate institution or governmental agency for a review and endorsement of the proposed activity. Such endorsement must indicate that the proposal merits careful consideration by NASA and that, if the proposal is selected by NASA, sufficient funds will be available to undertake the activity envisioned.

(iv) Proposals including the requested number of copies and letters of endorsement must be forwarded to NASA in time to arrive before the deadline established for this AO. One set of these documents must also be sent to:

Ms. Wavalene Barnes
National Aeronautics and Space Administration
Space Science and Aeronautics Division
Code IS
Office of External Relations
Washington, DC 20546
U.S.A.

(v) Those proposals received after the closing date will be treated in accordance with NASA's provisions for late proposals. Sponsoring government agencies may, in exceptional situations, forward a proposal directly to the above address if review and endorsement is not possible before the announced closing date. In such cases, NASA should be advised when a decision on endorsement can be expected.

(vi) Successful and unsuccessful proposers will be contacted directly by the NASA Program Office coordinating this AO. Copies of these letters will be sent to the sponsoring Government agency.

(vii) NASA's Office of External Relations will make the arrangements to provide for the selectee's participation in the NASA program. Depending on the nature and extent of the proposed cooperation, these arrangements may entail:

(A) A letter of notification by NASA;

(B) An exchange of letters between NASA and the sponsoring foreign governmental agency; and/or

(C) An agreement or Memorandum of Understanding between NASA and the sponsoring non-U.S. governmental agency.

Non-U.S. proposers need not submit a Cost Plan unless NASA-supported U.S. individuals are involved in the proposal, but must follow all other specifications given in this section. Non-U.S. proposers must have their proposals reviewed and endorsed by their appropriate government agency. An endorsed original of the proposal must be sent to the NASA Space Science and Aeronautics Division (address given in Appendix B) and should arrive before the deadline for receipt of proposals. The additional copies of the proposal, including one copy with original signatures, must be sent directly to the address given in Section 4.6 above. Appendix B contains additional guidelines for non-U.S. proposers.

5. PROPOSAL EVALUATION, SELECTION, AND IMPLEMENTATION PROCEDURES

5.1 Evaluation Criteria

The fundamental goal of the evaluation process is to identify scientific ideas and unique theoretical and analytical capabilities that best meet the scientific objectives of the Mars Surveyor '98 mission as described in this Announcement. Accordingly, the following criteria, listed in descending order of importance, will be used in evaluating all proposals submitted in response to this Announcement:

The scientific and technical merit of the proposed investigation, its contribution to the objectives of the mission and relevance to this specific opportunity. Factors determining the scientific and technical merit of a proposal will include the following, in no priority order:

- A clear understanding of the Mars Surveyor '98 mission, its instruments, and its scientific and technical capabilities, particularly those related to the proposed investigation.

- The feasibility of the proposed investigation using the Mars '98 instruments, and the data returned from them and a clear statement of the instrument data required for the proposed investigation.

- The ability, capability, and commitment of the investigator to participate in planning, collection, reduction, and evaluation of the data to be submitted to the PDS. A description of the specific data products that will be produced by the investigation should also be included.

Also considered, but of less importance in the proposal evaluation, are:

The competence and relevant experience of the proposing PI and any proposed support personnel as an indication of their ability to perform the proposed technical tasks and carry the investigation to a successful conclusion.

Realism and reasonableness of the total costs and the comparison of these costs to the available funds. Total costs will be considered to include not only those proposed for scientific investigation and science data analysis, but also the impact the proposed investigation may have on space mission operation costs.

Management considerations, including demonstrated capability to adhere to sound business practices.

The commitment of the proposing institution, as measured by the willingness of the institution to provide the necessary support (logistics, facilities, etc.) to ensure that the investigation can be satisfactorily completed.

5.2 Evaluation and Selection Procedures

Proposals received in response to this Announcement will be evaluated in accordance with the provisions of the NASA Federal Acquisition Regulations (FAR) 1870 (Guidelines for Acquisition of Investigations). All proposals will be subjected to a preliminary screening by NASA to determine their suitability and responsiveness to the Announcement. Proposals that are not responsive to the intent and/or scope of this Announcement will be rejected without further evaluation.

Following this preliminary action, the scientific and technical aspects of each proposal will be assessed by a panel composed of scientific and technical peers of the proposer. The purpose of this evaluation will be to determine the scientific and technical merit of each proposal, expressed in terms of strengths and weaknesses. Members of the Mars Surveyor '98 Science Team will be asked to provide written reviews on the technical feasibility of the proposed investigation with respect to both capabilities of the Mars Surveyor '98 instruments and the investigation already planned by the science team.

After these evaluations an *Ad Hoc* Subcommittee of the Space Science Steering Committee (SSSC, see further below), composed entirely of Civil Servants, will consider the proposal evaluations, together with additional information regarding management and cost aspects, and categorize the proposals according to the following definitions:

Category I: Well-conceived and scientifically and technically sound investigations pertinent to the goals of the program and the Announcement's objectives and offered by a competent investigator from and institution capable of supplying the necessary support to ensure that the investigation can be delivered on time and within budget. Category I investigations are recommended for selection, and normally may be replaced only by other Category I investigations.

Category II: Well-conceived and scientifically and technically sound investigations that are recommended for acceptance, but at a lower priority than Category I.

Category III: Scientifically and technically sound investigations that require further development. (For the purpose of this AO, there is neither funding nor time to allow for development of Category III proposals; therefore any Category III proposals will be treated as a Category IV).

Category IV: Proposed investigations that are recommended for rejection for this particular opportunity, for any reason.

Following the categorization process, the NASA Program Scientist will develop a recommendation for selection of Mars'98 Participating Scientist investigations. This recommendation, and all peer review and categorization materials for all proposals, will be submitted to the Space Science Steering Committee (SSSC), appointed by the Associate Administrator for Space Science, which will review all materials for adherence to NASA policies and procedures, and completeness. The SSSC will then submit these materials to the Selecting Official for this AO for final selection. The Science Program Director for Solar System Exploration has been designated the Selection Official by the Associate Administrator for the Office of Space Science. These selections will be final; no Accommodation Phase or Science Confirmation Review is planned for these investigations.

5.3 Implementation Procedures

Following the selection, the PI's of the selected investigations will be notified immediately by telephone, followed by formal written notification. Proposers of investigations that were not selected will be notified in writing and offered an oral debriefing.

6. CONCLUSION

The Mars Surveyor '98 mission represents the next step in the exploration of Mars in the Mars Surveyor Program for which NASA invites participation in proposals for Science Team membership as Participating Scientists.

Carl B. Pilcher
Science Program Director
Solar System Exploration

Edward J. Weiler
Associate Administration for
Space Science

Appendix A: General Instructions and Provisions.

1. Instrumentation and/or Ground Equipment

By submitting a proposal, the investigator and institution agree that NASA has the option to accept all or part of the offeror's plan to provide the instrumentation or ground support equipment required for the investigation or NASA may furnish or obtain such instrumentation or equipment from any other source as determined by the selecting official. In addition, NASA reserves the right to require use, by the selected investigator, of Government instrumentation or property that becomes available, with or without modification, that will meet the investigative objectives.

NOTICE TO ALL OFFERORS: In the event that a Principal Investigator employed by NASA is selected under this AO, NASA will award prime contracts to non-Government participants, including Co-Investigators, hardware fabricators, and service providers, who are named members of the proposing team, as long as the selecting official specifically designates the participant(s) in the selection decision. Refer to Section G of Appendix B of this AO for proposal information which the selecting official will review in determining whether to incorporate a non-Government participant in the selection decision. Each NASA contract with hardware fabricators or service providers selected in this manner will be supported by an appropriate justification for other than full and open competition, as necessary.

2. Tentative Selections, Phased Development, Partial Selections, and Participation with Others

By submitting a proposal, the investigator and the organization agree that NASA has the option to make a tentative selection pending a successful feasibility or definition effort. NASA has the option to contract in phases for a proposed experiment, and to discontinue the investigative effort at the completion of any phase. The investigator should also understand that NASA may desire to select only a portion of the proposed investigation and/or that NASA may desire the individual's participation with other investigators in a joint investigation, in which case the investigator will be given the opportunity to accept or decline such partial acceptance or participation with other investigators prior to a selection. Where participation with other investigators as a team is agreed to, one of the team members will normally be designated as its team leader or contact point.

3. Selection Without Discussion

The Government reserves the right to reject any or all proposals received in response to this AO when such action shall be considered in the best interest of the Government. Notice is also given of the possibility that any selection may be made without discussion (other than discussions conducted for the purpose of minor clarification). It is therefore emphasized that all proposals should be submitted initially on the most favorable terms that the offeror can submit.

4. Foreign Proposals

See Appendix B, Management Plan and Cost Plan, paragraph (a)(3).

5. Treatment of Proposal Data

It is NASA policy to use information contained in proposals and quotations for evaluation purposes only. While this policy does not require that the proposal or quotation bear a restrictive notice, offerors or quoters should place the following notice on the title page of the proposal or quotation and specify the information, subject to the notice by inserting appropriate identification, such as page numbers, in the notice. Information (data) contained in proposals and quotations will be protected to the extent permitted by law, but NASA assumes no liability for use and disclosure of information not made subject to the notice. To prevent inadvertent disclosure, proposal data shall not be included in submissions (e.g. final reports) that are routinely released to the public.

RESTRICTION ON USE AND DISCLOSURE OF PROPOSAL
AND QUOTATION INFORMATION (DATA)

The information (data) contained in [insert page numbers or other identification] of this proposal or quotation constitutes a trade secret and/or information that is commercial or financial and confidential or privileged. It is furnished to the Government in confidence with the understanding that it will not, without permission of the offeror, be used or disclosed for other than evaluation purposes; provided, however, that in the event a contract is awarded on the basis of this proposal or quotation the Government shall have the right to use and disclose this information (data) to the extent provided in the contract. This restriction does not limit the Government's right to use or disclose this information (data) if obtained from another source without restriction.

6. Status of Cost Proposals (U.S. Proposals Only)

The investigator's institution agrees that the cost proposal is for proposal evaluation and selection purposes, and that following selection and during negotiations leading to a definitive contract, the institution may be required to resubmit cost information in accordance with FAR 15.403-5.

7. Late Proposals

The Government reserves the right to consider proposals or modifications thereof received after the date indicated, should such action be in the interest of the Government.

8. Disclosure of Proposals Outside Government

NASA may find it necessary to obtain proposal evaluation assistance outside the Government. Where NASA determines it is necessary to disclose a proposal outside the Government for evaluation purposes, arrangements will be made with the evaluator for appropriate handling of the proposal information. Therefore, by submitting a proposal the investigator and institution agree that NASA may have the proposal evaluated outside the Government. If the investigator or institution desire to preclude NASA from using an outside evaluation, the investigator or institution should so indicate on the cover. However, notice is given that if NASA is precluded from using outside evaluation, it may be unable to consider the proposal.

9. Equal Opportunity (U.S. Proposals Only)

By submitting a proposal, the investigator and institution agree to accept the following clause in any resulting contract:

EQUAL OPPORTUNITY

During the performance of this contract, the Contractor agrees as follows:

(a) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin.

(b) The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. This shall include, but not be limited to, (1) employment, (2) upgrading, (3) demotion, (4) transfer, (5) recruitment or recruitment advertising, (6) layoff or termination, (7) rates of pay or other forms of compensation, and (8) selection for training, including apprenticeship.

(c) The Contractor shall post in conspicuous places available to employees and applicants for employment the notices to be provided by the Contracting Officer that explain this clause.

(d) The Contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(e) The Contractor shall send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding the notice to be provided by the Contracting Officer, advising the labor union or workers' representative of the Contractor's commitments under this clause, and post copies of the notice in conspicuous places available to employees and applicants for employment.

(f) The Contractor shall comply with Executive Order 11246, as amended, and the rules, regulations, and orders of the Secretary of Labor.

(g) The Contractor shall furnish to the contracting agency all information required by Executive Order 11246, as amended, and by the rules, regulations, and orders of the Secretary of Labor. Standard Form 100 (EEO-1), or any successor form, is the prescribed form to be filed within 30 days following the award, unless filed within 12 months preceding the date of award.

(h) The Contractor shall permit access to its books, records, and accounts by the contracting agency or the Office of Federal Contract Compliance Programs (OFCCP) for the purposes of investigation to ascertain the Contractor's compliance with the applicable rules, regulations, and orders.

(i) If the OFCCP determines that the Contractor is not in compliance with this clause or any rule, regulation, or order of the Secretary of Labor, the contract may be canceled, terminated, or suspended in whole or in part, and the Contractor may be declared ineligible for further Government contracts, under the procedures authorized in Executive Order 11246, as amended. In addition, sanctions may be imposed and remedies invoked against the Contractor as provided in Executive Order 11246, as amended, the rules, regulations, and orders of the Secretary of Labor, or as otherwise provided by law.

(j) The Contractor shall include the terms and conditions of subparagraph l through 9 of this clause in every subcontract or purchase order that is not exempted by the rules, regulations, or orders of the Secretary of Labor issued under Executive Order 11246, as amended, so that these terms and conditions will be binding upon each subcontractor or vendor.

(k) The Contractor shall take such action with respect to any subcontract or purchase order as the contracting agency may direct as means of enforcing these terms and conditions, including sanctions for non-compliance; provided, that if the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of direction, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

10. Patent Rights

(a) For any contract resulting from this solicitation awarded to other than a small business firm or nonprofit organization, the clause at 1852.227-70, "New Technology," shall apply. Such contractors may, in advance of contract, request waiver of rights as set forth in the provision at 1852.227-71, "Requests for Waiver of Rights to Inventions."

(b) For any contract resulting from this solicitation awarded to a small business firm or nonprofit organization, the clause at FAR 52.227-11, "Patent Rights -- Retention by the Contractor (Short Form)" (as modified by 1852.227-11), shall apply.

11. Small and Small Disadvantaged Business Subcontracting

(a) Offerors are advised that, in keeping with Congressionally mandated goals, NASA seeks to place a fair portion of its contract dollars, where feasible, with small disadvantaged business concerns, women-owned small business concerns, Historically Black Colleges and Universities, and minority educational institutions, as these entities are defined in 52.219-8 and in 52.226-2 of the FAR. For this Announcement of Opportunity, NASA has established a recommended goal of 8 percent for the participation of these entities at the prime and subcontract level This goal is stated as a percentage of the total contract value. NASA encourages all offerors to meet or exceed this goal to the maximum extent practicable and to encourage the development of minority businesses and institutions throughout the contract period.

(b) Offerors are advised that for NASA contracts resulting from this solicitation which offer subcontracting possibilities, exceed $500,000, and are with organizations other than small business concerns, the clause FAR 52.219-9 shall apply Offerors who are selected under this AO will be required to negotiate subcontracting plans which include subcontracting goals for small, small disadvantaged, and women-owned small business concerns Note that these specific subcontracting goals differ from the 8 percent goal described in paragraph A above, and need not be submitted with the proposal Failure to submit and negotiate a subcontracting plan after selection shall make the offeror ineligible for award of a contract.

Appendix B: Guidelines for Proposal Preparation.

The following guidelines apply to the preparation of proposals in response to this Announcement of Opportunity. The material is a guide for the proposer and not intended to be encompassing or directly applicable to the various types of proposals that can be submitted. The proposer should provide information relative to those items applicable or as required by the Announcement. In the event of an apparent conflict between these guidelines in this Appendix and those contained within the body of the AO, those within the AO shall take precedence.

1. GENERAL GUIDELINES

All documents must be typewritten in English, use metric units, and be clearly legible. Submission of proposal material by facsimile, electronic media, videotape, floppy disk, etc., is not acceptable. In evaluating proposals, NASA will only consider printed material. Proposals may not reference a World Wide Web site for any data or material needed to understand or evaluate the proposal.

The proposal must consist of only one volume, with readily identified sections corresponding to items A through F given in section III below. Note the guidance on page count for the various sections specified in Table B-1.

In order to allow for recycling of proposals after the review process, all proposals and copies must be submitted on plain white paper only (e.g., no cardboard stock or plastic covers, no colored paper, etc.). Proposers are requested not to use three-ring binders. Photographs and color figures are permitted if printed on recyclable white paper only. The original signed copy (including cover page, certifications, and non-U.S. endorsements) should be bound in a manner that makes it easy to disassemble for reproduction. Except for the original, two-sided copies are preferred. Every side upon which printing appears will be counted against the page limits.

2. PAGE LIMITS

While there is no limit on the total size of the proposal, there are limits on the sizes of several key components. See Table B-1. Proposals may contain fold-out pages up to a size of 11 x 17 inches (28 x 43 cm), but such fold-out pages count as two pages on each printed side against the page limit. All pages other than fold out pages shall be 8.5 x 11 inches or A4 European standard.

Table B-1: Page Limits for Proposals

Section	Page Limits
A. Cover Page/Investigation Summary	Use form from Web site (see III.A below)
B. Table of Contents	1
C. Description of Scientific Investigation	15
D. References	No limit
E. Resume, Relevant Experience, Curriculum Vitae (total for all named personnel)	5
F. Management Plan and Budget	No limit

Single- or double-column format is acceptable. In complying with the page limit, no page should contain more than 55 lines of text and the type font should not be smaller than 12-point Times (i.e., approximately 15 characters per inch). Figure captions should be in 12 point. Figures and cost tables may contain smaller font as long as they are easily legible.

3. CONTENTS OF PROPOSALS

The content of each proposal is described below.

3.1 COVER PAGE/INVESTIGATION SUMMARY

All proposals must be prefaced by an integrated Cover Page/Proposal Summary that contains important, required information (see below). Produce this item by first entering the requested information electronically through the World Wide Web site given in Section 4.1 of this AO. Section 4.1 also provides a point of contact for any proposer who does not have access to the Web or who experiences difficulty in using the specified site. Use a printed copy of the electronically submitted form to obtain original signatures of the PI and an official from the proposing institution to submit with the original copy of the proposal. In addition, use reproductions of this original *Cover Page/Proposal Summary* to preface the required printed copies of the proposal.

The electronic *Cover Page/Proposal Summary* form will provide a block of space (about one page in length) for a self-contained Proposal Summary of the proposed research activity. The Proposal Summary is intended to provide background and perspective to the interested reader and, therefore, must include the following key information:

- A description of the key, central objectives of the proposed research in terms sufficient for a nonspecialist not familiar with the document to grasp its essence; and,

- A statement of methods proposed to accomplish those proposed objectives.

Note: NASA intends to publish the proposal title, the PI name and institution, and the Proposal Summary of every selected investigation in a public data base. Therefore, the Proposal Summary should not include proprietary information that would preclude its unrestricted release (see also Appendix A, Section V).

Changes (such as whiteout or strikethrough) to the printed Cover Page/Proposal Summary are not permitted. The proposer may make needed changes to the information submitted electronically only by editing the electronic submission following the instructions at the World Wide Web site given in Section 4.1 of the AO. After submitting the final Cover Page/Proposal Summary electronically, the proposer must then print the correct and final version and obtain the necessary signatures.

Note: The authorizing institutional signature now also certifies that the proposing institution has read and is in compliance with the three required certifications printed in full at the end of this Appendix. NASA does not, therefore, require institutions to separately submit these certifications with the proposal.

3.2 TABLE OF CONTENTS

The proposal must contain a table of contents which parallels the outline provided below in Sections C through F of this Appendix.

3.3 INVESTIGATION AND TECHNICAL PLAN

(a) Investigation and Technical Plan.

The investigation and technical plan generally must contain the following:

(1) Summary. A concise statement about the investigation, its conduct, and the anticipated results.

(2) Objective and Significant Aspects: A brief definition of the objectives, their value, and their relationships to past, current, and future effort, the history and basis for the proposal and a demonstration of the need for such an investigation, and a statement of present development in the discipline field.

(3) Investigation Approach: A full description of the concept of the investigation, and details of the methods and procedures for carrying out the investigation.

(b) Data Reduction and Analysis,

The proposal must include a discussion of the data reduction and analysis plan including the method and format, and a schedule for the submission of reduced data to the receiving point. In the case of Space Science programs, the Planetary Data System, Jet Propulsion Laboratory, Pasadena, CA.

3.4 REFERENCES

This section must provide a list of reference documents used in the proposal. The documents themselves cannot be submitted except as a part of the proposal and included within the prescribed page count.

3.5 RESUME, RELEVANT EXPERIENCE, CURRICULUM VITAE

This section must describe the capabilities of the Principal Investigator and any other named personnel for carrying out the proposed investigation. A summary of relevant experience must be included, along with a short version of investigator's curriculum vitae. Proposers should be sure to describe the skills and relevant experience being offered in support of the special needs for the Mars'98 instruments.

3.6 MANAGEMENT PLAN AND COST PLAN

(a) Management Plan.

The management plan should summarize the management approach for the proposed PS investigations, including any required facilities and equipment required:

(b) Cost Plan (U.S. Investigations Only)

The cost plan should summarize the total investigation cost by major categories of cost as well as by function.

The categories of cost should include the following:

(i) Direct Labor -- List by labor category, with labor hours and rates for each. Provide actual salaries of all personnel and the percentage of time each individual will devote to the effort.

(ii) Overhead -- Include indirect costs. Usually this is in the form of a percentage of the direct labor costs.

(iii) Materials -- This should give the total cost of the bill of materials including estimated cost of each major item. Include lead time of critical items.

(iv) Subcontracts -- List those over $25,000, specify the vendor and the basis for estimated costs. Include any baseline or supporting studies.

(v) Special Equipment -- Include a list of special equipment with lead and/or development time.

(vi) Travel -- List estimated number of trips, destinations, duration, purpose, number of travelers, and anticipated dates.

(vii) Other Costs -- Costs not covered elsewhere.

(viii) General and Administrative Expense -- This includes the expenses of the institution's general and executive offices and other miscellaneous expenses related to the overall business.

(ix) Fee (if applicable).

Separate schedules, in the above format, should be attached to show total cost allocable to the following:

(i) Principal Investigator and other Investigators' costs.

(ii) Data reduction and analysis including the amount and cost of computer time.

Appendix C. Certifications

The following pages contain, for reference only, copies of the three currently required Certifications. Note that the original signature of the Authorizing Institutional Representative on the printed version of the Cover Page submitted with the proposal now verifies that the proposing organization complies with these Certifications; therefore, these Certifications do not have to be independently signed and submitted as in previous Announcements of Opportunity.

Certification Regarding Debarment, Suspension, and Other Responsibility Matters

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 34 CFR Part 85, Section 85.510, Participant's responsibilities. The regulations were published as Part VII of the May 26, 1988 Federal Register (pages 19160-19211).

(1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
   (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
   (b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statues or commission of embezzlement theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
   (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
   (d) Have not within three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

(2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Certification Regarding Lobbying

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000, and not more than $100,000 for each such failure.

Certification of Compliance with the NASA Regulations Pursuant to Nondiscrimination in Federally Assisted Programs

The *(Institution, corporation, firm, or other organization on whose behalf this assurance is signed, hereinafter called "Applicant ")* hereby agrees that it will comply with Title VI of the Civil Rights Act of 1964 (P.L. 88-352), Title IX of the Education Amendments of 1962 (20 U.S.C. 1680 et seq.), Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and the Age Discrimination Act of 1975 (42 U.S.C. 16101 et seq.), and all requirements imposed by or pursuant to the Regulation of the National Aeronautics and Space Administration (14 CFR Part 1250) (hereinafter called "NASA") issued pursuant to these laws, to the end that in accordance with these laws and regulations, no person in the United States shall, on the basis of race, color, national origin, sex, handicapped condition, or age be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the Applicant receives federal financial assistance from NASA; and hereby give assurance that it will immediately take any measure necessary to effectuate this agreement.

If any real property or structure thereon is provided or improved with the aid of federal financial assistance extended to the Applicant by NASA, this assurance shall obligate the Applicant, or in the case of any transfer of such property, any transferee, for the period during which the real property or structure is used for a purpose for which the federal financial assistance is extended or for another purpose involving the provision of similar services or benefits. If any personal property is so provided, this assurance shall obligate the Applicant for the period during which the federal financial assistance is extended to it by NASA.

This assurance is given in consideration of and for the purpose of obtaining any and all federal grants, loans, contracts, property, discounts, or other federal financial assistance extended after the date hereof to the Applicant by NASA, including installment payments after such date on account of applications for federal financial assistance which were approved before such date. The Applicant recognized and agrees that such federal financial assistance will be extended in reliance on the representations and agreements made in this assurance, and that the United States shall have the right to seek judicial enforcement of this assurance. This assurance is binding on the Applicant, its successors, transferees, and assignees, and the person or persons whose signatures appear below are authorized to sign on behalf of the Applicant.